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THE PORT OF PHILADELPHIA.

BY

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Some cities, like some men, are born great, while others have greatness thrust upon them.

Philadelphia was destined to attain greatness from her infancy. Her founders were not mere adventurers, but men of firm religious convictions, who found on the shores of the majestic Delaware a refuge from persecution. Here the intrepid Swede, the adventurous Dane, the philosophic German and the conscientious Quaker dwelt together in brotherly love.

The site of the city was carefully selected by William Penn, with reference to its adaptability to the wants of a large community. Its facility of access by the means then available, its harbor, its topography, its sources of supply of food, water and fuel, fish, game and timber, were all duly considered, and so wisely was the site chosen that for 144 years Philadelphia maintained her supremacy over all the cities of the new world. Her ships covered the seas, her "conestogas" traversed the mountains, her manufactures supplied the most distant markets, while her intelligence and public-spirited patriotism made her the cynosure of the world.

In 1820, five years prior to the opening of the Erie Canal, Philadelphia had a population of 135,673, being 11,931 more than that of New York. In 1830, five years after the opening, there was a balance of 8,325 in favor of New York, and this difference has been constantly increasing to date. In 1840 it was 54,673 more; in 1850, 106,785; in 1860, 248,140; in 1870, 268,270; in 1880, 359,039 and in 1890, 468,649, showing a rapid rate of increase.

The city of Chicago was chartered in 1837, with 4,170 inhabitants At the date of the last census its population was 1,098,576, or 53,682 more than that of Philadelphia. Thus, in a half century this interior port has outstripped her two-century-old sister.

The opening of the Erie Canal caused a decline in the commerce of Philadelphia, while it greatly stimulated that of New York, since it increased immensely the territory tributary to that centre. It did not violate the general law relative to the location of the proper site for our city, viz: at the point of transfer between land and water carriage, or at the head of navigation, but it modified the conditions and enabled both New York and Chicago to surpass us, in consequence of their terminal positions, on a line of less resistance, reaching a larger territory.

The reason for the locus of transfer being found at the head of navigation for ocean vessels, will become apparent upon a moment's reflection. While land and water traffic are reciprocal, it must be remembered that the water produces comparatively nothing while the cost of movement over it is much less than that on land. Hence the more land there is surrounding a navigable channel to the sea, the greater will be the commerce. A city on the border of an extended and straight coast-line, as Norfolk, for instance, will have but a semi-circular area to draw from; one which is on a reëntrant angle, like New York, will have three-fourths of the circle tributary to her port; while one that is in the heart of a continent, as Chicago, will have nearly the full circle, and hence for equal land rates of transportation and an equivalent population, the latter will have a great advantage as a shipping point. If there were a deep draught channel from Chicago to the sea, whereby the break of bulk at Buffalo and New York might be avoided, the water rate would be still lower, and the advantage of the terminals be even greater.

Substantially the same conditions exist at Superior and Duluth since the enlargement of the Sault St. Mary Canal, excepting that a portion of the tributary area is on foreign territory. Thus the geographical position of the port is seen to be an important factor in determining the amount of its commerce, but there are other elements which materially affect this movement. One of these is the cost of land transportation. This is a function of the number and character of the ways of communication. The more railroads and highways there are radiating from the port, the lower will be the tariff, provided the roads and rolling stock are maintained in good condition as competing lines. In this particular New York and Chicago outstrip Philadelphia in about the ratio of six to one.

Cheap transportation to and from the back country is therefore another of the ruling factors in determining the amount of commerce of a port, since it expands or contracts the tributary areas inversely as the square of the rate fluctuates.

It behooves us, therefore, as citizens, to consider whether it is not possible to extend the tributary territory of this point by reducing the rate of traffic or by increasing our facilities for reaching a much larger constituency, for patronage is the life of trade, and the transportation lines are the tentacles whereby this life is maintained.

The transportation routes tributary to Philadelphia are the lines owned, controlled, leased or operated by the Pennsylvania Railroad Company, which embrace (1890):

	First Track. Miles.
The United Railroads of New Jersey,	445·69
New York and Long Branch Railroad,	38·04
Pennsylvania Railroad (Main Line),	1,441·37
Philadelphia and Erie,	549·31
Northern Central,	382·45
Junction Railroad in Philadelphia,	3·56
Philadelphia, Wilmington and Baltimore,	648·08
New York, Philadelphia and Norfolk,	111·46
West Jersey,	222·01
Camden and Atlantic,	80·49
Cumberland Valley,	164·74
Allegheny Valley,	259·40
	4,346·60
Total trackage in Pennsylvania, including sidings, etc.,	8,288·14

In addition to this there are the following lines under the jurisdiction of the "Pennsylvania Company," having its headquarters at Pittsburgh, and coöperating with the Pennsylvania Railroad:

		Miles.
The Pittsburgh, Fort Wayne and Chicago,	469·9	
Branches,	352·4	
Leased lines,	338·9	
		1,161·2
Operated by control of stocks:		
Pittsburgh, Cincinnati, Chicago and St. Louis,	1,144·5	
Its branches,	247·7	
Other lines,	445·9	
		1,838·1
By guarantees of Pennsylvania Railroad Company,		491·1
		3.490·4
Mileage of Pennsylvania Railroad brought forward,		4.346·6
Total mileage under control of Pennsylvania Railroad,		7,837·0

The Philadelphia and Reading system embraces under its control a total of 1,106·6 miles, and carried in 1890, of coal, 10,821,691 gross tons; of miscellaneous freight, 10,968,536 gross tons; and, including the weight of passengers, a total of 24,788,527 tons, the number of passengers being 18,103,893.

The Lehigh Valley Railroad Company's lines connecting Lake Ontario at Fairhaven with New York and Philadelphia, cover a distance of 886·24 miles. This company's business is reported for 1890 to have been:

Passengers,	5,191,821
Miscellaneous freight (gross tons),	5,358,064
Coal,	9,101,824

The Lehigh Coal and Navigation Company have, of railroads (leased to Central Railroad of New Jersey), 192·49 miles; of canals (leased to Central Railroad of New Jersey), 108 miles.

The Baltimore and Ohio Railroad embraces:

	Miles.
Main Line to Wheeling	379·80
Branches of Main Line,	391·15
Philadelphia Division,	124·00
Pittsburgh Division,	335·60
New York Division,	5·05
Trans-Ohio,	647·58
Valley Railroad of Virginia,	62·00
Ohio River Bridge,	2·50
	1,948·13

It connects Chicago, Cleveland, Sandusky and Cincinnati with Baltimore, Philadelphia and New York. On the 1,212 miles east of the Ohio it carried, in 1890, 11,469,091 passengers and 25,652,284 tons of freight. Of these 2,529,335 passengers and 5,882,289 tons were moved over the Philadelphia Division.

Thus while the mileage of these four trunk lines aggregates 11,970 miles, it does not mean that it is all tributary to Philadelphia. On the contrary it is divided mainly between New York, Philadelphia and Baltimore as well as its western terminals, and the percentage of traffic going to each is determined largely by the local facilities, rates, demand, policy and interests of the transporting companies. That the *pro rata* coming to Philadelphia is small, will be evident from her commercial statistics as compared with those of the other Atlantic ports.

Thus the value of the exports of breadstuffs, provisions and mineral oils for the year ending June 30, 1891, are reported as follows, from

	New York	Baltimore.	Boston.	Philadelphia.
	$109,825,000	$40,544,000	$28,014 000	$19,865,000
Ratio,	5·5	2	1·4	1

From which it appears that, while Philadelphia is as near to the sources of these staples as any of the four ports on the Atlantic, she cannot compete even with so distant a point as Boston, which shipped more than three times the quantity of breadstuffs and provisions that Philadelphia did.

As the New England States are not producers of these articles, but consumers, the bulk of the freights originating in the West must have gone by water past New York and up the Sound to Boston before it could be exported. The opening of the Cape Cod Canal will still further stimulate this trade and make the discrepancy of our local exports even greater, unless measures are taken to counteract this influence.

Again, if we compare the *total exports* of the four ports we will find Philadelphia far in the rear. For 1890 the exports from New York, Boston, Philadelphia and Baltimore, were:

	New York.	Baltimore.	Boston.	Philadelphia.
Foreign, ...	$15,845,974	$22,941	$836,989	$170,863
Domestic, ...	370,322,430	73.967,796	70,364,955	37,241,645
Total exports, . .	$ 86,168,404	$73,990,737	$71.201,954	$37,412,508
Ratios referred to Phila.,	10 3	1·99	1·9	1

In 1887 these relations were 10, 1·5, 1·7, 1; in other words, the export trade of Baltimore and Boston have increased more rapidly than that of Philadelphia and are actually nearly double that of this city, although the population of either of those places is less than half that of this port.

May we not inquire, of what avail is it to be the largest manufacturing centre in the United States and what becomes of our products? Are they sent to other ports for shipment, thus increasing their cost to the consumer or adding to the expense of the producer? As well might we expect freight to be hauled by rail from Baltimore to Philadelphia to be shipped, as from Philadelphia to New York for the same purpose. The great discrepancy between New York and Philadelphia is certainly not due to differences in population, nor in manufactures, nor to geographical position, nor to relative proximity to the source of the great staples composing the bulk of the commerce, coal, wheat, oil, sugar and textiles, for in these respects the two cities are far within the limits of their commercial ratio of of one to ten.

No matter in what direction we look for the cause of this great discrepancy, we are forced to the conviction that for some inexplicable reason the "common carriers" find it subservient to certain interests to deliver the bulk of their freights at other terminals than those on the Delaware; for there is no mechanical or physical law that will justify a movement over a line of greater resistance rather than over the lesser one, provided it have equal facilities for storage and trans-shipment.

This general statement is confirmed by a glance at the statistics of the *grain exports* of New York, Baltimore, Boston and Philadelphia for the past few years.

Exports of wheat and corn from

	New York.	Baltimore.	Boston.	Philadelphia.
1887, ...	54.192,321	18,175.104	6,297,883	10,770,757
1888, ...	26,845,423	7,824.422	4,456,486	1,809,215
1889, ...	39,571,280	21,212,598	7.595.044	4,750,922
1890, ...	37,169,433	24,250,597	5,025.990	17,353,397

The logic of these figures shows that in 1888 and 1889 this port shipped barely one-half as much wheat and corn as Boston, seventy-eight per cent. less than Baltimore and only one-eleventh that of New York, yet this was not due to any differential rates favoring the more remote ports, for the following were the tariffs as published for 1889,* all rail, from Chicago to

	New York	Phila.	Balto.	Boston.	To Liverpool. Average.	Cwt.	Chicago & Lake Erie Canal Charges to New York (including Buffalo.)
Flour, per barrel, . . .	50	46	44	60	—	—	
Grain per 100 lbs., . .	25	23	22	30	39½	12 5-6	7 5-7 cts. per bu. (60 lbs.)
Provisions per 100 bbls.,	30	28	27	35	57½	—	
Corn per 100 lbs., . . .	20	18	17	25	—	—	

Showing that it cost four cents more per pound for flour by rail to New York, and sixteen cents more to Boston than to this city. For grain the differences are also in our favor, viz: two cents per hundredweight to New York, and seven cents to Boston. Hence, if there were no disturbing causes, the law of distribution over the lines of least resistance, as measured by the cost of movement, should bring the bulk of the grain to Baltimore and Philadelphia, rather than to New York and Boston. But when it is seen that the through rate by the lakes and the Erie canal, including the Buffalo charges, is only *one-half* the all-rail rates to New York it explains the anomaly, and shows why even Boston can export more than Philadelphia, and it forcibly points the moral as to the importance of maintaining the waterways for the public welfare. I have frequently urged the importance to Philadelphia of a more direct and enlarged artificial channel between this city and New York, by way of the Upper Delaware River, and the Delaware and Raritan Canal, thus extending the benefits derived from the Erie Canal to Philadelphia, and rendering it possible to bring that powerful auxiliary into competition with our railroads for the interior traffic of the country. Even should the traffic not be large over the canal, the facilities would be there and the moral effect would be to keep rates low and greatly to augment the business. I believe this one project would have a greater beneficial effect on the commerce of this entire section of country than the building of half-a-dozen trunk lines of railroad. There is no part of the civilized world where such a canal is more greatly needed, or where it would give greater promise of success. Its termini would connect a population equal to one-tenth that of the entire United States, and as I have elsewhere proven,* it would be beneficial to the railroads skirting its territory. No other canal across New Jersey would pay in competition with the river as it would take too long to pass through it.

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* *Thirty second Annual Report, Trade and Commerce of Chicago.*

But the low water rates *via* the Erie Canal are not alone responsible for the decadence of this port. A few statistics relative to the movement of *grain cars* will also be found suggestive. Thus the car receipts for 1890, at New York, were as follows:

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* Pamphlet, *The Commercial Paradox*, from *The Manufacturer*. By L. M. Haupt, Philadelphia.

	N.Y.C.	W. Shore.	Erie.	P.R.R.	D.L.&W.	L.V R.R.	Total.
1890, ...	8,866	15,105	19.782	3,545	4,226	11,628	63,152
1891 to October 16th, ...	23.618	16,601	22,272	1,833	1,157	9,697	75,178

Thus the New York Central and West Shore, although longer than the Erie, moved, up to October 16th of this year, 40,219 cars, as compared with 22,272 over the Erie, and only 1,833 over the Pennsylvania Railroad. The business of the Lehigh Valley road in grain to New York is, by this exhibit, five times greater than that of the Pennsylvania Railroad.

The data for Philadelphia and Baltimore are:

	CARS MOVED TO PHILADELPHIA.			TO BALTIMORE.		
	P. R. R.	P. & R.	Total.	P. R. R.	B. & O.	Total.
1890, ...	18,276	9,492	27,768	17,662	17,495	35,157
to October 16, 1891, .	6,138	5,068	11,206	10,672	12,248	22,920
Total loss, ...			16,562	Total, ...		12,237

This shows a remarkable falling off in the grain movements to date for both of these ports. The Pennsylvania Railroad has 12,138 cars less for Philadelphia to date, October 16, 1891, than it had for the whole of last year, and 6,990 less for Baltimore. The Philadelphia and Reading Railroad has 4,434 cars less for this point, and the Baltimore and Ohio 5,247 less for Baltimore. The total losses are 16,562 cars for Philadelphia, and 12,237 for Baltimore, or for both places, 28,799 cars. The gain in New York has been 12,026 cars, and it is worthy of note that by far the largest gain on any of the railroads was that on the New York Central and West Shore (16,248 cars), and which *parallels the canal and Hudson River*. Surely this waterway does not appear to have injured these railroads. Why so large a percentage of the grain movement should have taken the longer northern route, and the business of the lines leading to these nearer terminals should have so greatly fallen off in this year of plenty, must be left, for the present, largely to conjecture. It is sufficient to state the facts: Thus from January 1st to October 2d, the exports of wheat and corn from Philadelphia amounted to 5,856,286 bushels as compared with 17,110,154 bushels for the same period of last year, a loss of 11,253,868 bushels,* or 337,616 tons. For Baltimore the figures for this year are 13,610,706 bushels, as compared with 23,526,908 for last year, being a loss of 9,916,202, which is not quite so great a reduction as here: While for New York the exports of wheat and corn for the nine months ending October 2, 1890 and 1891, were 32,658,859 and 36,163,427 bushels, respectively, being a gain of 3,504,568 bushels. New York's percentage for this period of 1891 was 47; Baltimore's, 18; New Orleans', 11; Montreal's, 9; Philadelphia's, 7, and the balance scattering. In 1890 our proportion of this trade was sixteen per cent. From whatever standpoint we view the commercial statistics, therefore, we find Philadelphia occupying the lowest position amongst her rival ports.

THE PETROLEUM MOVEMENT.

Let us look for a moment at another of the staple exports of the country which to-day is practically independent of any of the laws of competition in transportation. I refer to petroleum. There are pipe lines under the same management reaching from the oil centre to each of the three ports, New York, Philadelphia and Baltimore, and although the line to the last-named point is perhaps a little shorter than either of the others, the cost of transportation is virtually the same, hence the amount of exports may be taken as furnishing some indication of the relative importance of the port facilities for foreign exports.

The shipments for 1890, were, from New York, 8,871,059 barrels; Philadelphia, 3,185,924 barrels; Baltimore, 288,643 barrels. Total, 12,335,626 barrels, of which the percentages were: New York, 71·92; Philadelphia, 25·82; Baltimore,

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* "The loading capacity of the 60,000-pound car varies from 850 to 900 bushels for wheat; from 850 to 1,000 bushels for corn, and from 1,200 to 1,500 bushels for oats." Average increase, oats, 1,050.

2·26, but so great were the facilities offered for the product at this port that a new line was put into operation here, February 27, 1891, and the percentage of oil sent out has now risen to 33·67, while that of New York has fallen to 64·51, and of Baltimore to 1·82.

These figures would seem to justify a much higher rank to this port than is generally accorded her on the commercial registers, and go far towards showing that the decadence of the commerce is not due so much to physical obstructions to navigation nor to geographical position, as to the manner in which the freight movements are regulated by those having control of them. For the lake and rail traffic Philadelphia has advantages not possessed by any other port, since, from Erie, the rail distance is but 446, while to New York from Buffalo *via* the New York Central is 442 miles, and by the Erie Railroad it is 423 miles. From Erie to Baltimore is 426 miles or only 20 miles less than to Philadelphia, but the former is much further from the sea than the latter, and hence the desire for a ship canal across the Peninsula to Delaware Bay. Erie is also nearer the source of freight than Buffalo and has a more capacious harbor.

In this connection one of the most experienced observers in the United States says:*

"The city of Philadelphia has superior internal communications with the entire country lying west of her boundaries. The traffic produced and exported to foreign countries by that large area of territory, and that which it imports, can, so far as promptness and cheapness of transportation are concerned, be better done through Philadelphia than through any other Atlantic port, because the Delaware River permits the water portion of the through carriage to continue so much further inland than any other port having equal rail and lake connections with the great West."

The superiority of the site is indisputable, and has been demonstrated by experience, but, as has been shown, the conditions of trade are unfavorable, and Philadelphia ranks among the least of the principal commercial centres of the country. The existence or non-existence of the islands in the Delaware, about which so much has been said, is a comparatively unimportant factor in the case. Their removal, which is estimated to cost $3,500,000, will not change the policy of the transportation companies towards this city. It will, however, permit the extension of the piers and bulkheads eastward and thus provide greater facilities for transfer of freight, which is very desirable, but it must also be remembered that to provide for a rapid delivery and removal of freight there must be a coincident arrival of ship and cars or else a sufficient storage capacity to provide for the delay or shortage of either. To reach the Delaware front, the freights must be hauled across the city *via* Willow Street or Washington Avenue, or else by a long detour *via* Greenwich Point or Port Richmond. Each ship carrying 3,000 tons of cargo would require 100 thirty-ton car-loads of freight, and at three cars per 100 feet the length of each train for loading and unloading would be 3,300 feet, or a total of about three-fifths of a mile. But the cars do not run full, and hence the train would, in fact, be longer. At present provision is made for the grain business at Richmond and Girard Point, where there is elevator capacity amounting to about 3,000,000 bushels or about thirty vessel loads, but a visitor to Girard Point would be apt to conclude from the absence of vessels and the general appearance of the vicinity that the company had gone out of business.

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* Col. Jos. D. Potts.

What is required to stimulate commerce and to restore to Philadelphia a portion of her old-time activity, is an element which will enable her merchants, manufacturers, shippers, producers and consumers alike to obtain their supplies or ship their products over lines which are virtually independent of combinations, and there is nothing that approaches so near to fulfilling this condition as the waterway. There is the river it is true, but it opens upon the sea, its inland territory is limited to the few miles to Trenton, and even that is restricted by the Five-Mile Bar, which is being improved at Fisher's Point. But if the barrier which has checked the trade with the interior *via* the Erie and Delaware and

Raritan Canals were removed, and the northern waterway opened across New Jersey *via* an enlarged ship canal between Bordentown and New Brunswick, it would do more, I believe, to develop all classes of business and trade in this, as well as other cities, than any project that could be undertaken. The Pennsylvania Railroad Company has leased the Delaware and Raritan Canal for a period of 999 years, guaranteeing ten per cent. interest on a capitalized value of $5,847,400. In 1890, the freights moved over it amounted to 1,209,668 tons. The gross receipts were $509,162.76, and the expenses $415,326.08, giving net receipts on the business transacted $93,836.68, but with the interest and taxes the total losses for the year amounted to $565,435.56, or over $500,000.

Contrasting this with the business done in 1866, its most prosperous year prior to the lease, we find expenses, $360,513.83; receipts, $1,294,156.69; profits, $933,642.86, which was nearly twenty-three per cent. of the capital invested in the canal ($4,381,251.28), while for the same year the Camden and Amboy Railroad barely earned five per cent. on its capital of $10,099,000.97. At present a large amount of the coal to eastern ports goes out by the Capes in colliers, which if the canal were enlarged, could save considerable time by traversing it. The grain and ores of the lake region could also be delivered in this city at less cost than at present and the stimulus given to trade and population would rapidly compensate the railroads for any temporary loss they might suffer from a diversion of a portion of the traffic. Such is believed to be the lesson of experience elsewhere.

If the cost of this line were to amount to $20,000,000, a traffic of only 2,000,000 of tons at fifty cents per ton, which is believed to be considerably less than the present rate by water, would pay five per cent. on the cost, and this traffic is less than the average for a number of years prior to the lease of June, 1871. Can Philadelphia afford to wait 979 years for a consummation so devoutly to be wished? But this is a project of national importance and has been frequently urged from the foundation of the Republic. It was one of the features of the great log rolling bill introduced into Congress in 1812, in behalf of national aid for the Erie Canal, and has been frequently revived and urged by various interests, but as yet without success. Under existing methods of administration it will require the united influence of the Atlantic Coast States as well as of those along the Great Belt waterway, all of which will be benefited, to induce the Government to inaugurate the undertaking. It is certainly worthy the effort.

I have placed this enterprise first in importance because I believe it will produce the greatest amount of good, both locally and generally, but I would not ignore those works of lesser importance which are distinctly within the jurisdiction of the municipality or of the individual. Unfortunately there has been too little concerted action on the part of our citizens in the way of public improvements, and it is only when aroused by some threatened or actual calamity that sufficient interest can be awakened to prevent it.

After a long contest the Baltimore and Ohio Railroad was admitted and the Reading Terminal and the Belt Line ordinances were passed. The work on them is now well begun. They will no doubt be of great use to the city and its commerce in facilitating traffic and aiding in the general distribution of freight, but their effects are, to a large extent, local. They will enable the few competing land carriers to reach their principal patrons, but they do not very materially increase the territory tributary to the city or reduce the rates of transportation, as would be the case with the proposed waterway if under national control or even under a corporate body charging a limited tariff.

Although much time has been given to the commercial aspects of this question rather than to the physical, it seems to be necessary, to awaken if possible, a greater public interest in its importance and to concentrate attention upon its political relations, for it should certainly be fostered by the Government, but this will only happen when the wish of the people is made manifest by instructions to their representatives.

PHYSICAL CONDITION OF THE PORT.

Although the water frontage of this city is about twenty-five miles in length only a small portion of it has been developed, a large portion being Government property and other portions being cut off by the Five Mile and Horseshoe Bars. Immediately in front of the city the stream is occupied by Smith's and Windmill Islands, which have recently been purchased, at a cost of $708,652.86. The contract for their removal was let last spring and is progressing slowly. As the question is often asked whether this improvement will be permanent it may be stated that the mere removal of the islands without a simultaneous contraction of the river banks so as to maintain a constant cross-section, will result in hastening the deposits by reducing the velocity of the stream. As this formation is one produced by the river and is situated on the middle ground between the paths of the flood and ebb currents, it is the natural dumping ground of the stream and unless there be some auxiliary work to bring those two currents more nearly into coincidence, the bar must ever remain.

But there is no provision in law requiring the riparian owners to extend their piers to the new Port Warden's line which has been recently established by the Secretary of War and which lies in the deep water of the main channel. Unless this work is done at a number of points at the same time with the removal of the islands, the amount of material to be dredged will be found to be largely in excess of that now in place and the desired result will be very much delayed, as well as the expense increased.

Recent specifications provide that "the rate of progress of the excavation is to be determined by the rate of advance of actual wharf constructions to the new harbor lines so as to maintain the assigned section of the new channel." But as there is no law requiring property owners to extend their wharves into water from forty to nearly sixty feet deep, and as none have done so, it would seem that the work of excavation should be suspended, as it has been for some time past, though it is believed from a different cause.*

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* This should not be misunderstood to mean an official suspension by the Government, which at this date has not been ordered. L. M. H.

Moreover the jurisdiction over the harbor lines appears now to be vested by Act of Congress, in the Secretary of War; by Act of Assembly, in the Board of Port Wardens, subject to ordinance of City Councils, and the Board's authority in this matter is restricted to granting permits and is not mandatory as to constructions or extensions of piers.

Again, there is another body, the Board of Harbor Commissioners, appointed by the Presidents of Select and Common Councils, under an ordinance of the city passed July 8, 1879, whose duty it is to "devise, consider and present a plan or plans for the preservation and permanent improvement of the harbor and the port of Philadelphia, and for the increase of its landing accommodations."* For a time this Board was assisted by an Advisory Board composed of an officer of the Engineer Corps U. S. A., an officer of the Navy, and an assistant from the Coast Survey, but this Advisory Board was recently disbanded. There is also a Board of three U. S. Engineers on the Permanent Improvement of the River, and a U. S. Engineer detailed by the Secretary of War as Consulting Engineer to the Harbor Commissioners in lieu of the Advisory Board.

Thus there would appear to be ample provision for the making of plans, but virtually none for their execution, excepting so far as the navigable channel is concerned or as it may be found to be to the interest of the private owner to improve his property subject to restrictions as to length. It must be evident, therefore, that before a well-digested plan for the improvement of our Delaware River front can be executed, there should be authority vested in some central body to condemn and purchase property, and to build and lease such wharves and docks as may be necessary to conduct the business of trans-shipping freight.

As the vested interests along the river front are numerous and the properties very valuable it will be many years before such a symmetrical development may be expected, and there are other reasons why the consummation of a reorganized commerce at this point may be long deferred.

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* The writer is indebted to Wm. R. Tucker, Secretary of the Philadelphia Board of Trade, for this information.

On the other hand we are not devoid of resources, for there is as yet a comparatively undeveloped frontage, of great value, available near Greenwich Point on the Delaware, and on both banks of the Schuylkill, which flows through the heart of the city, where there are ample opportunities for developing commercial facilities far greater than those now existing and at a comparatively small cost. The principal railroads either have tracks laid to or are within a short distance of the mouth of the Schuylkill, and freight is daily carried past that point to the Delaware front only to be returned to the same point by water on its way to the Capes, thus doubling the haul and obstructing the city streets by the surface traffic. The Belt Line will bring this section within a few minutes' ride of the Custom House and even without it the Chester branch of the Philadelphia and Reading Railroad renders it possible to reach the business portion of the city in a very short time.

This would appear to be the section of the city best adapted to meet the commercial requirement of its immediate future, and I believe it will not be many years before very material improvements will be found there. It is not generally known that about one-third of the foreign commerce of this port goes out of the Schuylkill. It is not very long since one of the Allen Line steamers was nine days in getting through an ice pack on the Horseshoe shoals near League Island. Already the railroad companies are seeking terminals at Marcus Hook and Chester, beyond the city limits, and it certainly looks as if they intend to utilize these points at the expense of the city.

There is not time to review the physical condition of the Delaware River from its mouth to the port, but it is worthy of note that it is not all that could be desired, although, thanks to the prompt action of the Engineer in Charge, Major Raymond, its condition has been considerably ameliorated at one of its most dangerous points. Between February 22, 1890, and May 8, 1891, or in less than fifteen months, at least forty-eight vessels struck on or near the Bulkhead Shoals, and so serious had this obstruction become that in March last no less than seven steamers ran aground, two of which were detained nearly twelve hours.

A jetty is now being built there which it is expected will aid in keeping open the channel which has been deepened by dredging.*

There are several other points where the depth is barely sufficient, as at Dan Baker Shoal, Maiden Island Bar, Cherry Island Flats, etc., but taking it as a whole the river is regarded as one of the best waterways on the Atlantic, whether by day or night.

The Delaware Breakwater can no longer be regarded as a harbor, and the closing of the "gap" between the ice breaker and the breakwater, which is still in progress, will not materially enlarge its capacity or depth. The harbor has shoaled, from over twenty-five feet to less than seventeen. In some places near the breakwater only eleven feet are to be found. This is the inevitable result of all structures so located as to intercept the currents. Had the ice breaker been removed, as proposed ten years ago, and its material been deposited along the site of the gap, the result would have been a great improvement.

The term, harbor of refuge, is now a misnomer, for in the storm of March 12, 1888, no less than twenty-seven vessels which had sought shelter behind the breakwater were dashed to pieces and many lives were lost—and again in September of the year following, twenty-three vessels shared a similar fate, making fifty vessels lost in eighteen months.

The effect of the present structure will be to create an artificial island with a submerged embankment connecting it with the shore.

We have seen what the facilities are for bringing freight to our port by land and have discussed all too briefly the opportunities for handling such freight in transit. Let us now note the provision made for its transportation by water. This will be shown by giving the list of vessels engaged in the carrying trade to foreign or domestic ports from this city, as follows:

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* At the time of going to press it is unofficially stated that the single jetty at this point has given all the depth required for the largest vessels.

L. M. H.

There are eight foreign steamship lines at present running to this port, viz:

Line.	*To and from.*	*Number of Vessels.*	*Total net Tonnage.*
Allan Line, ...	Glasgow,	3	5,610
American Line, ...	Liverpool,	6	13,960
Atlantic Transport Line, ...	London,	7	13,853
Baltimore Fruit Company, ...	West India,	3	1,593
Howes Fruit Line, ...	West India,	3	1,241
North Atlantic Trident Line, . . .	London,	7	12,465
Red Star Line, ...	Antwerp,	2	4,486
Spreckels Line, ...	Hamburg,	4	5,490
		35	58,698 tons

Coastwise steamship lines number nine, as follows:

	Steamers.	*Net Tonnage.*
Boston and Philadelphia Steamship Line, . . .	4	4,264
Clyde Line, Richmond, Norfolk, etc., ...	5	3,588
Clyde Line, Philadelphia, Albany and Troy, . .	1	372
Clyde Line, Philadelphia and New York, ...	5	1,397
Ericsson Line (Baltimore), ...	5	1,483
Ocean Steamship Company, of Savannah, . . .	1	892
Philadelphia, Fall River and Providence Line, .	3	2,335
Philadelphia and New York (Mercer & Co.), . .	1	197
Phila. and Reading Coal and Iron S. S. Line, .	12	8,619
	37	22,897 tons

There is only one sailing vessel line running from this port; that is, Sutton's Despatch Line to San Francisco. During the past year eight ships have been chartered for this line comprising a net tonnage of 12,618.

These make a total of eight foreign lines of thirty-five vessels, carrying 58,698 net tons, and ten coastwise lines of forty-five vessels, carrying 35,515 tons.

By the way of comparing this with our sister city of New York, it is stated that in 1890 she had of—

	Vessels.	*Tons.*
Sailing vessels, ...	1,976	409,468
Steam vessels, ...	1,032	374,673
Total, ...	3,008	784,141

in addition to which there were 230 canal boats of 23,709 tons and 671 barges of 140,540 tons.*

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* John H. Gould, in *Scribner's Magazine*, November, 1891, "The Ocean Steamship as a Freight Carrier."

The canal boat business of Philadelphia is fast becoming extinct, although it was the cheapest method of bringing coal to this city, while the canal was maintained in good order.

Before the lease to the Philadelphia and Reading Railroad, July 1, 1870, the rate by canal was only one-half the subsequent rate by rail, and the canal paid.

Under the terms of this lease the railroad company agreed to guarantee the interest on the stock and bonds of the Schuylkill Navigation Company, amounting to $655,000 per annum, but in consequence of the policy of the railroad, and for other reasons, it went into the hands of receivers, and these guarantees were unfulfilled. The Navigation Company was subsequently asked to take back its property, but without any assurance that the railroad would furnish it with coal for transportation. Under these circumstances the request was of course declined. It was testified by the late President of the railroad company before the Master that all of the net revenues of the company up to that time had been earned by the canal. And yet this, the most profitable part of the company's property is allowed to fall into decay, while the more expensive method of transportation, viz: that by rail, is fostered at the expense of every coal consumer in this as well as other cities. The only party who can utilize this waterway for its legitimate purpose is the Reading Railroad Company, and such use of it would undoubtedly greatly increase the revenue of that company, as well as benefit the city at large.

The citizens of the port of Philadelphia have a direct pecuniary interest in the inquiry, Why does the Philadelphia and Reading Railroad Company desire to sell this dilapidated canal to the city as a conduit for the supply of water, rather than utilize it for the transportation of coal to this and other ports?

As the largest manufacturing centre on the continent, Philadelphia needs above all things cheap fuel, and debarred as she is from the use of natural gas, she is losing a number of industries which have been attracted to the gas belt. Her rate of growth during the last decade has been exceeded by almost every town or city of any size in the State. Thus while Pittsburgh has increased at the average rate of 5·26 per cent.; Pottstown, 15; Reading, 3·6; Scranton, 6·4; Shamokin, 7·6; Braddock, 15·8; Steelton, 27·8; Philadelphia's average yearly rate of increase is only 2·3 per cent.

This city has been considered fortunate in her location due to the proximity of this prime necessity—coal—but her vantage ground is destroyed by the improved lines of transportation to other cities and the development of new fields. Thus Chicago is abundantly supplied from the extensive deposits of Indiana and Illinois, and consumes more coal per capita than her Eastern rivals. In 1889, 4,665,258 tons were consumed in Chicago, of which more than two-thirds was bituminous, an average of 4·5 tons per individual.

New York	burned	5,153,436	tons, or	3·4	per capita.
Philadelphia	"	4,107,281	"	4·1	"
Brooklyn	"	2,000,000	"	2·5	"
Boston,	"	1,766,410	"	3·9	"
Baltimore,	"	1,108,613	"	2·5	"
Scranton, Pa.,	" only	132,145	"	1·8	"
Reading, Pa.,	"	391,846	"	6·7	"
Newark, N. J.,	"	544,076	"	3·0	"

The amount of coal delivered to vessels for their own fuel at the four ports was as follows:

For New York,	1,322,895	tons,	65 per cent. approx.
Philadelphia,	297,609	"	14 ±
Baltimore,	227,000	"	10 ±
Boston,	70,267	"	3 ±
Other Atlantic and Gulf,	80,000	"	3·8±
Pacific,	93,000	"	4·2±
	2,090,771		

These statistics barely need comment, they tell their own story, and show the importance to this city of creating and maintaining an unlimited supply of cheaper fuel for home consumption, manufactures and commerce, and this can best be done by a revival of interest in the Schuylkill Navigation Company's waterway, and an earnest popular appeal to the railroad companies which have throttled these cheap lines of communication on the flanks of this port, either to utilize these channels themselves or permit others to do so, for the public good. It appears to be the policy of the railroads to persist in transporting by rail when there are many articles of the grosser kind which could be carried much more cheaply and quite as expeditiously by water, thus producing a greater revenue for the transporting company, and at the same time reducing the cost to the consumer.

As patrons of these great companies may we not respectfully inquire why these facilities are not utilized to their fullest extent, for the benefit of all the parties at interest, and in the absence of a satisfactory explanation, urge upon the aforesaid companies the propriety of inaugurating a different policy whereby the waterways may be rehabilitated and employed to their full capacity. Then will the Port of Philadelphia be restored in large part to its old-time prestige.

The lecture was closed by projecting upon the screen a number of views of foreign and other harbors crowded with shipping, as at Marseilles, Trieste, Havre, Bordeaux, Liverpool, San Francisco, Boston and New York, and the plans of the Manchester and of the proposed ship canal from the Delaware River to New York Bay were exhibited. This latter project was so located as to avoid many of the difficulties incidental to an enlargement of the old Delaware and Raritan Canal and to shorten the distance from forty-four to thirty-three and three-fourths miles. There would be two lifts of twenty-five feet each and two tidal locks. The summit level would be fifty feet above mean low water, and the section of the canal is designed to be twenty feet deep by ninety feet bottom width, 150 feet surface width and ten feet bermes, giving about 26,000,000 cubic yards of excavation.

It is estimated that the entire work from Philadelphia to Staten Island would cost $12,500,000.

This would constitute the most important link in the interior waterway of the Atlantic Coast, connecting the most populous and most valuable centres commercially and strategically. Its advantages to the entire country can hardly be overestimated as a factor in preserving peace and promoting prosperity.